

WHAT IS CLAIMED IS:

1. A system for vehicle protocol conversion, comprising:

5 a bus connector adapted to be coupled to a vehicle bus;  
a protocol transceiver coupled to the bus connector, the protocol transceiver operable to:

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a vehicle bus protocol, and

10 receive messages through the bus connector according to the vehicle bus protocol;

a computer coupled to the protocol transceiver, the computer operable to:

15 analyze the messages received through the bus connector to determine whether they should be transmitted, and

receive the messages destined for communication through the bus connector; and

20 a wireless communication device coupled to the computer, the wireless communication device, using a wireless link, operable to transmit the messages that should be transmitted and receive the messages destined for communication through the bus connector.

25 2. The system of Claim 1, wherein the computer is further operable to:

format the messages to be transmitted for communication to the wireless communication device, and

30 format the messages destined for communication through the bus connector for the protocol transceiver.

3. The system of Claim 1, wherein the computer determines whether the messages received through the bus connector satisfy predetermined criteria to determine whether they should be transmitted.

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4. The system of Claim 3, wherein the computer examines the destination address of the messages to determine whether the messages satisfy predetermined criteria.

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5. The system of Claim 3, wherein the computer has a plurality of predetermined criteria sets.

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6. The system of Claim 1, wherein the computer is further operable to analyze the messages destined for communication through the bus connector to determine whether they should be sent through the bus connector.

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7. The system of Claim 1, wherein:  
the wireless communication device is further operable to receive messages destined for the computer; and  
the computer is further operable to determine if the messages are destined for it.

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8. The system of Claim 7, wherein at least some of the messages destined for the computer specify criteria for determining whether messages received through the bus connector should be transmitted.

9. The system of Claim 1, further comprising a second protocol transceiver coupled to the bus connector and the computer, the second protocol transceiver operable to:

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a second vehicle bus protocol; and

receive messages through the bus connector according to the second vehicle bus protocol.

10. The system of Claim 9, wherein the computer is further operable to select, for a message destined for communication through the bus connector, which of the protocol transceivers will send the message.

11. The system of Claim 9, wherein the first protocol transceiver is operable to send and receive messages through the bus connector according to J1939 and the second protocol transceiver is operable to send and receive messages through the bus connector according to J1587.

12. The system of Claim 1, wherein the computer comprises a memory operable to store messages received through the bus connector for transmission upon the establishment of a wireless link.

13. The system of Claim 1, wherein the computer comprises a memory operable to store information about an associated vehicle.

14. The system of Claim 13, wherein the information comprises the vehicle identification number.

15. The system of Claim 1, wherein the computer is further operable to perform the operations of a node on a vehicle bus.

5 16. The system of Claim 1, wherein the bus connector comprises an assembly line diagnostic link connector having sixteen pins.

10 17. The system of Claim 1, wherein the computer is further operable to manage messages to be transmitted over the wireless link.

15 18. The system of Claim 17, wherein the computer is operable to store a message in a buffer, determine whether a sufficient amount of such messages are present in the buffer, and transmit the messages if a sufficient amount of messages are present to manage messages to be transmitted over the wireless link.

20 19. The system of Claim 1, wherein the computer is further operable to claim multiple addresses on the bus.

25 20. The system of Claim 1, wherein the wireless communication device is a high-speed, short-range wireless communication device.

21. A method for vehicle protocol conversion, comprising:

receiving messages through a vehicle bus connector according to a vehicle bus protocol;

5 analyzing the messages to determine whether they should be transmitted; and

transmitting the messages over a wireless link if they should be transmitted.

10 22. The method of Claim 21, further comprising:

receiving, over the wireless link, messages destined for communication through the vehicle bus connector; and

15 sending the messages through the bus connector according to a vehicle bus protocol.

23. The method of Claim 22, further comprising analyzing the messages destined for communication through the vehicle bus connector to determine whether they should be sent through the vehicle bus connector.

20 24. The method of Claim 22, further comprising:  
formatting the messages to be transmitted for transmission over the wireless link; and

25 formatting the messages destined for communication through the bus connector for communication through the bus connector.

30 25. The method of Claim 21, further comprising selecting which of a plurality of protocol transceivers will send a message through the bus connector according to a vehicle bus protocol.

26. The method of Claim 21, wherein analyzing the messages comprises determining whether the messages satisfy predetermined criteria.

5 27. The method of Claim 26, wherein there are a plurality of predetermined criteria sets to be analyzed.

28. The method of Claim 21, further comprising:  
receiving, over the wireless link, messages containing  
10 the predetermined criteria;  
identifying the messages; and  
implementing the criteria.

29. The method of Claim 21, wherein the vehicle bus  
15 protocol comprises J1939.

30. The method of Claim 21, further comprising storing  
messages received through the bus connector and transmitting  
the messages upon the establishment of a wireless link.

31. The method of Claim 21, further comprising storing  
information about an associated vehicle.

32. The method of Claim 21, wherein the wireless link  
25 comprises a high-speed, short-range wireless link.

33. The method of Claim 21, further comprising managing  
messages to be transmitted over the wireless link.

34. The method of Claim 33, wherein managing messages to  
be transmitted over the wireless link comprises storing a  
message in a buffer, determining whether a sufficient amount  
of such messages are present in the buffer, and transmitting  
5 the messages if a sufficient amount of messages are present.

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35. A system for vehicle protocol conversion, comprising:

means for receiving messages through a vehicle bus connector according to a vehicle bus protocol;

5 means for analyzing the messages to determine whether they should be transmitted; and

means for transmitting the messages over a wireless link if they should be transmitted.

10 36. The system of Claim 35, further comprising:

means for receiving, over the wireless link, messages destined for communication through the vehicle bus connector;

means for analyzing the messages to determine whether they should be sent through the vehicle bus connector; and

15 means for sending the messages through the bus connector according a vehicle bus protocol if they should be sent through the vehicle bus connector.

20 37. The system of Claims 35, further comprising means for selecting which of a plurality of protocol transceivers will send a message through the bus connector according to a vehicle bus protocol.

25 38. The system of Claim 35, wherein analyzing the messages comprises determining whether the messages satisfy predetermined criteria.

30 39. The system of Claim 35, further comprising:  
means for receiving, over the wireless link, messages containing the predetermined criteria;  
means for identifying the messages; and  
means for implementing the criteria.



40. The system of Claim 35, further comprising means for storing information to be sent over the wireless link.

5 41. The system of Claim 35, wherein the wireless link comprises a high-speed, short-range wireless link.

42. The system of Claim 35, further comprising means for managing messages to be transmitted over the wireless link.

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43. A system for vehicle protocol conversion, comprising:

a bus connector adapted to be coupled to a vehicle bus;

a plurality of protocol transceivers coupled to the bus connector, each protocol transceiver operable to:

receive messages destined for communication through the bus connector and send the messages through the bus connector according to a vehicle bus protocol, and

receive messages through the bus connector according to the vehicle bus protocol;

a computer coupled to the protocol transceivers, the computer operable to:

receive the messages received through the bus connector and determine whether the messages should be transmitted,

receive the messages destined for communication through the bus connector, determine whether they should be sent through the bus connector, and select between the protocol transceivers for sending the messages through the bus connector, and

determine whether received messages are destined for it; and

a wireless communication device coupled to the computer, the wireless communication device, using a wireless link, operable to transmit the messages that should be transmitted, receive the messages destined for communication through the bus connector, and receive message destined for the computer.

44. The system of Claim 43, wherein the computer has a plurality of predetermined criteria sets for determining whether messages received through the bus connector should be transmitted.

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45. The system of Claim 43, wherein at least some of the messages destined for the computer specify criteria for determining whether messages received through the bus connector should be transmitted.

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46. The system of Claim 43, wherein the wireless communication device is a high-speed, short-range wireless communication device.

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